

What is claimed is:

1. A method of forming a compressed transcoded digital image signal from a compressed original digital image signal which comprises digital data organized in blocks, the compression of the original signal comprising at least one step of spatio-frequency transformation of this signal and a step of coding the data blocks of said transformed signal, wherein the method comprises the following steps:
  - selecting a data block in one of the compressed signals,
  - 10       - identifying, in the other compressed signal, a so-called dual data block which corresponds to the data block selected having regard to a given geometric transformation applied to this block,
  - decoding the data block belonging to the compressed original signal,
  - applying the given geometric transformation to the data block thus
  - 15       decoded,
  - coding the geometrically transformed data block,
  - inserting the first data block thus coded in the compressed transcoded image signal at the position of its dual block.
2. The method according to Claim 1, wherein the selection of a block is
- 20       made in the compressed transcoded digital image signal.
3. The method according to Claim 1, wherein the selection of a block is made in the compressed original digital image signal.
4. The method according to Claim 1, wherein the compressed transcoded digital image signal is formed progressively as each coded data block is
- 25       inserted in this signal.
5. The method according to Claim 1, wherein the given geometric transformation is selected from amongst a set of transformations comprising a vertical axis reflection SV, a horizontal axis reflection SH, a transposition TR and a combination of transformations formed from at least two of the aforementioned
- 30       three transformations SV, SH, TR.
6. The method according to Claim 1, wherein, when the compression of the original signal comprises, prior to the coding, a step of decomposition of said

signal into frequency sub-bands, said method comprises a step of identifying the frequency sub-band to which the dual data block which depends on the given geometric transformation belongs.

7. The method according to Claim 5, wherein the compression of the original signal comprises, prior to the coding, a step of decomposition of said signal into frequency sub-bands, said method comprises a step of identifying the frequency sub-band to which the dual data block which depends on the given geometric transformation belongs, and when the geometric transformation applied to the decoded data block involves a transposition TR, if the data block of the first compressed signal belongs to a frequency sub-band LH having low-frequency coefficients in a first direction and high-frequency coefficients in a second direction, then the dual data block of the second compressed signal belongs to the frequency sub-band (HL) having high-frequency coefficients in the first direction and low-frequency coefficients in the second direction, and vice-versa.

8. The method according to Claim 5, wherein, when the given geometric transformation is selected from amongst a subset of transformations comprising a transposition TR, a combination of a transposition and a vertical axis reflection TR o SV, a combination of a transposition and a horizontal axis reflection TR o SH, a combination of a transposition, a horizontal axis reflection and a vertical axis reflection TR o SH o SV, said transformation is applied an even number of times.

9. The method according to Claim 1, wherein the identification of the dual data block in the other compressed signal consists of seeking, in this signal, the position which the data block corresponding to the first compressed signal would have by applying the given geometric transformation to it.

10. The method according to Claim 1, wherein the selection, identification and decoding steps are performed using at least one header of the compressed original digital image signal and which comprises the various parameters characterizing the compressed image.

11. The method according to Claim 10, wherein it comprises a step of forming at least one header of the compressed transcoded digital image signal according to the geometric transformation applied.

12. The method according to Claim 1, wherein the steps of selecting, identifying, decoding, transforming and coding the data blocks are performed resolution level by resolution level of the compressed transcoded digital image signal.

5           13. A method of processing a compressed original digital image signal with a view to its display in a required final geometric representation, the original digital image signal having a different initial geometric representation, the compression of the original signal comprising at least one step of spatio-frequency transformation of this signal and a step of coding said transformed  
10       signal, wherein the method comprises the following steps:

- obtaining at least one compressed transcoded signal part by transcoding the compressed original signal,
- modifying the geometric order in which said at least one transcoded signal part will be displayed on a medium after decompression, the modification of  
15       the display order taking account on the one hand of the required final geometric representation and on the other hand at least one geometric transformation applied during transcoding.

14. The method according to Claim 13, wherein the step of obtaining at least part of the compressed transcoded signal from a compressed original digital  
20       image signal comprises the following steps:

- decoding at least part of the compressed original digital signal,
- applying at least one geometric transformation to said at least one decoded signal part,
- coding said at least one geometrically transformed signal part in order  
25       to obtain a compressed transcoded signal part.

15. The method according to Claim 13, wherein, the step of obtaining a part of the compressed transcoded signal being carried out from a compressed original digital image signal comprising digital data organized in blocks of data which each form a part of the signal, the step of obtaining said part of the compressed  
30       transcoded signal comprises the following steps:

- selecting a data block in one of the compressed signals,

- identifying, in the other compressed signal, a so-called dual data block which corresponds to the data block selected having regard to a geometric transformation applied to this block,

- decoding the data block belonging to the compressed original  
5 signal,

- applying the geometric transformation to the data block thus decoded,

- coding the geometrically transformed data block,

- inserting the data block thus coded in the compressed transcoded  
10 image signal at the position of its dual block.

16. The method according to Claim 15, wherein the selection of a block is made in the compressed transcoded digital image signal.

17. The method according to Claim 13, wherein the geometric transformation is a transposition.

15 18. The method according to Claim 17, wherein, said at least one signal part being represented geometrically in the form of a row, the modification of the geometric order in which said at least one part will be displayed comprises a step of reversing the direction of travel of the row with a view to its display.

20 19. The method according to Claim 13, wherein the final geometric representation of the image signal is obtained by a rotation of the initial geometric representation of this signal through  $\pm 90^\circ$ .

20. The method according to Claim 13, wherein the display step is a step of printing the image signal.

25 21. A device for forming a compressed transcoded digital image signal from a compressed original digital image signal which comprises digital data organized in blocks, the compression of the original signal comprising at least a spatio-frequency transformation of this signal and a coding of the data blocks of said transformed signal, wherein the device comprises:

- means for selecting a data block in one of the compressed signals,
- 30 - means for identifying, in the other compressed signal, a so-called dual data block which corresponds to the data block selected having regard to a given geometric transformation applied to this block,

- means for decoding the data block belonging to the compressed original signal,

- means for applying the given geometric transformation to the data block thus decoded,

5       - means for coding the geometrically transformed data block,

- means for inserting the data block thus coded in the compressed transcoded image signal at the position of its dual block.

22. A device for processing a compressed original digital image signal with a view to its display in a required final geometric representation, the original digital image signal having a different initial geometric representation,  
10       the compression of the original signal comprising at least one spatio-frequency transformation of this signal and a coding of said transformed signal, wherein the device comprises:

- means of obtaining at least one compressed transcoded signal part by  
15       transcoding the compressed original signal,

- means of modifying the geometric order in which said at least one transcoded signal part will be displayed on a medium after decompression, the modification of the display order taking account on the one hand of the required final geometric representation and on the other hand of at least one geometric  
20       transformation applied during transcoding.

23. An information storage means which can be read by a computer or a microprocessor comprising code instructions of a computer program for executing the steps of the method according to Claim 1.

24. An information storage means which can be read by a computer or  
25       a microprocessor, containing code instructions of a computer program for executing the steps of the method according to Claim 13.

25. A computer program which can be loaded into a programmable apparatus, wherein it contains sequences of instructions or portions of software code for implementing the steps of the method according to Claim 1, when this  
30       computer program is loaded into and executed by the programmable apparatus.

26. A computer program which can be loaded into a programmable apparatus, wherein it comprises sequences of instructions or portions of

software code for implementing the steps of the method according to Claim 13, when this computer program is loaded into and executed by the programmable apparatus.